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THE PROBLEM OF MAN'S GRAVITATIONAL-INERTIAL FORCE ENVIRONMENT IN SPACE FLIGHT

1 June 1963 - Sept. 30, 1963

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Period Covered

1 June 1963 - 30 September 1963

U. S. NAVAL SCHOOL OF AVIATION MEDICINE
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The mechanical and structural phases of the new Slow Rotation Room have been completed and the final electrical checkout tests are in progress. It is expected that the acceptance tests for the device will be initiated on 14 October 1963, with the device ready for actual experimentation early in December. With regard to instrumentation all components of this system have been received and installed. The system is currently being wired, with the installation scheduled for completion on 1 November 1963.

Additions to the staff include Dr. Makoto Igarashi, temporal bone pathologist, and his three laboratory assistants, and one laboratory assistant in Vestibular Physiology. Visiting investigators include Dr. Allen Benson of the RAF Institute of Aviation Medicine, Farnborough, England, 16 April to 29 May; Dr. Brent Clark, Professor of Psychology, San Jose State University, 11 June to 15 August; and Dr. Charles D. Wood, Professor of Pharmaceutics, University of Arkansas Medical School, 5 May to 23 August.

Cooperative investigations were conducted with Dr. Robert Newsome of the Astronautics Division of General Dynamics in July. Normal persons and deaf subjects with bilateral vestibular defects were exposed to centripetal force on a human centrifuge while submerged to the neck in water; the contribution of the otolith organs to postural and visual upright was demonstrated. Joint investigations at Pensacola and Wright-Patterson AFB were conducted in cooperation with Captain Robert Kellogg, USAF, utilizing C-131 and KC-135 aircraft modified for exposing subjects to zero G and subgravity states. Comparative measurements obtained on normal persons and labyrinthine defective subjects included ocular counter-rolling, perception of the upright and susceptibility to canal sickness.

The only joint investigations planned for the next quarter will be conducted at Pensacola with the help of Drs. Walter Johnson and Kenneth Money. These will deal with the effects of selective destruction of the semicircular canals on the behavior of squirrel monkeys.

REPORTS COMPLETED

VP-31. Kellogg, R. S., Kennedy, R. S., and Graybiel, A.: A comparison of the symptomatology between deaf subjects with bilateral labyrinthine defects and normal subjects in standardized parabolic flights. Joint Report, 6570th Aerospace Medical Research Laboratories, U. S. Naval School of Aviation Medicine, and NASA (Grant R-47). (R93-11).

VP-32. Kennedy, R. S. and Graybiel, A.: A comparison of three groups of naval aviation personnel to motion sickness. (R93-12)

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